

REMARKS

Claims 8, 10-13 and 16 stand rejected under 35 USC 102 over Oshima (JP 9142391A). Claims 9, 14 and 15 stand rejected under 35 USC 103 over Oshima in view of Heer et al. Claim 8 has been amended and consequential amendments have been made to the dependent claims. The independent claim 16 has also been amended.

The present invention, as defined in the amended claims 8 and 16, is concerned with a water craft comprising a cargo deck at least in the aft region of the water craft and above which the hull of the craft defines a cargo space. Thus, the invention is particularly applicable to Roro vessels, in which vehicles are driven on and off the vessel through doors in the stern of the vessel. This mode of operation implies a need for the cargo space at the aft end of the vessel to be clear of unnecessary obstructions. In accordance with the present invention, as defined in claim 8, the water craft comprises a main propulsion means located in the aft region of the water craft, and at least first and second steering propulsion devices located in the aft region of the water craft to opposite sides of the main propulsion means. The method claim 16 is similar in scope to claim 8 but does not recite first and second steering propulsion devices. Claim 16 equivalently recites the steps of applying steering propulsion forces to the water craft at first and second locations in the aft region to the first and second sides respectively of the main propulsion means and by selectively varying the directions of the steering propulsion forces applied to the water craft at said first and second locations.

Oshima discloses that if it is desired that a ship should generate underwater noise at a reduced level, for example because the ship uses underwater acoustic equipment, it is advantageous for the ship to employ turning propellers 3 for steering while a main propeller 1 is used for propulsion of the ship. Oshima contains no disclosure regarding a cargo deck or a cargo space and there is nothing in Oshima that would lead a person of ordinary skill in the art to apply the teaching of Oshima to a water craft having a cargo space in an aft part of the hull.

Heer et al, on the other hand, discloses a Roro vessel driven by steering propeller units that serve not only for steering but also provide the necessary propulsion force, i.e. there is no separate main

propulsion propeller. Heer et al proposes that the problems associated with use of pod-propulsion devices in a Roro vessel should be solved by adopting a special design of the upper parts of the steering propulsion devices. The approach taken by Heer et al has its own disadvantages. For example, propulsion devices of this kind based on two large pod propulsion units require considerable electric power and the generator sets are heavy, bulky and expensive.

In accordance with the present invention, by using a main propulsion means and at least first and second steering propulsion devices, as defined in claim 8 (or using the steering method defined in claim 16), the size, weight and cost of the generating sets for providing operating power to the steering propulsion devices is substantially decreased relative to that necessitated by Heer et al. In addition, the claimed invention provides the capability of redundancy in the event of a partial failure of the propulsion system. For example, if the generator sets should fail, the possibility exists that the main propulsion means would continue to operate whereas if the generator sets of Heer et al should fail, the entire propulsion system is affected.

A person of ordinary skill in the art, presented with both Oshima and Heer et al, would find no basis for combining the disclosures of these references to arrive at an arrangement for providing propulsion and steering to a water craft having a cargo deck at least in the aft region of the water craft and above which the hull defines a cargo space. Since both Heer et al and Oshima each provide good maneuverability, there is even less incentive to combine the disclosures of these references and arrive at the present invention.

In view of the foregoing, applicant submits that the invention defined in claims 8 and 16 is not disclosed or suggested by Heer et al and Oshima, whether taken singly or in combination. Therefore, claims

8 and 16 are patentable and it follows that the dependent claims 9-15 also are patentable.

Respectfully submitted,



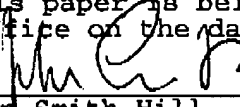
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